

An aerial photograph of Garrison Dam and Lake Sakakawea. The dam is a long, low concrete structure with a spillway on the left. Behind the dam is a large reservoir of blue water. In the foreground, there are several large, cylindrical storage tanks and a power substation with electrical equipment. The surrounding landscape is green and hilly.

GARRISON DAM

Behind Garrison Dam, which officially closed April 11, 1953, lies one of the largest man-made lakes in the country. Lake Sakakawea is 178 miles long from the dam to Williston. It's been said that enough water to cover all of North Dakota in six inches of water can be stored behind the dam.

A Half-Century Later

By Ron Wilson

Fifty years ago, it was finally finished. Garrison Dam, the gigantic shoulder parked solidly against the Missouri River creating Lake Sakakawea, closed on April 11, 1953.

The \$294 million project that promised the moon – generation of hydroelectric power, flood control, irrigation, recreation, water supply and downstream navigation – was lauded by some, but cursed by others whose homes and ways of life were inundated by waters held back by one of the largest earthen dams in the world.

Even 50 years later, the scale of the project is difficult to wrap your mind around. It's been said that it took 9 million truckloads of dirt and, once hardened, 1 1/2 million cubic yards of concrete to build the dam. That's 25 times more material than was used in the Great Pyramid of Cheops.

The embankment is 2 1/2 miles long and 210 feet tall. The dam is 2,050 feet wide at the base, tapering off to 60 feet at the top.

Behind this barrier of concrete and fill is Lake Sakakawea, one of the largest man-made lakes in the country, snaking its way 178 miles northwest from the dam to Williston.

At 1,850 feet above mean sea level, the lake covers 368,000 acres, according to U.S. Army Corps of Engineers estimates, has 1,300 miles of shoreline, and can store nearly 23 million acre feet of water – enough to cover all of North Dakota with about six inches of water.

The magnitude of the project was not lost on President Dwight D. Eisenhower who, on June 11, 1953, celebrated the closing of the second upstream link in the Pick-Sloan Plan for development of the upper Missouri River Basin. The plan, spearheaded in the 1940s by the corps and ordered by Congress to control flooding and open the downstream waterway to barges, called for harnessing the Missouri with construction of six dams along the course of the river.

Addressing thousands of spectators who lined Garrison Dam's west embankment, President Eisenhower said that 50 years earlier he would not have imagined that some day man would have the temerity ever to try to control the Big Muddy.

"The dam was built with the people's money. Its benefits must go to the people," President Eisenhower said.

Today, many people would argue that while there are benefits, what is reaped from the dam is not spread evenly among the people. Upstream stakeholders in the Dakotas and Montana contend, especially in times of low water, that too much of the Missouri River is ushered south for downstream navigation at the cost of upstream recreation.

The fix, the majority of Missouri River Basin states maintain, is the adoption of a contemporary federal playbook for managing the system. Out with the old and in with something new, they've argued for nearly 15 years without change.

Paradise Lost

In his address celebrating the closing of Garrison Dam, Army Corps of Engineers Gen. Lewis Pick said: "... I believe today that what you are doing through your federal agencies and the cooperation of the basin states to control floods, develop irrigation, produce hydroelectric power, encourage navigation of the lower river and the many other potentials of river development, constitute a new frontier of action which will bring new wealth and prosperity to this great section of our country."

To crowd that kind of thinking – the promise of new wealth and prosperity to North Dakota – and point out what was being lost to aid in the gain would have been audacious at the time.

When George Enyeart started working for the North Dakota Game and Fish Department in 1956, the dam had been closed for three years. Still, the slow-filling lake's elevation was about 1,772 msl, or about 50 feet or more lower than you'd find it today.

"For me to see the river and what it looked like before flooding, I had to go

upstream of New Town," said Enyeart, who retired in 1995 after nearly 40 years with the Department.

What Enyeart found was what remained of some of the richest wildlife habitat in the state – a functioning forest of cottonwoods, willows and dogwoods, a favorite browse of white-tailed deer.

"Most biologists would tell you that river bottom habitat is the most productive there is," he said.

Thousands of acres of it was eventually inundated as water backed up from Garrison Dam worked its way over the crowns of trees and up wooded draws that once harbored many animal species in all seasons.

"When you count the river bottom, the prairie and agriculture lands – all habitat for wildlife – then you have about 350,000 acres under water once the reservoir hits full pool," Enyeart said.

"About 100,000 acres of trees and timber are being lost on the Garrison Reservoir, all of which is wildlife cover. An unascertained number of acres will be lost below the dam due to changed land-use practices There are about 600,000 wooded acres in the state, so at least 17

percent of the woods and brush of the state are being lost on this one reservoir ..." wrote William Hanson for the Department in 1950.

Enyeart recalls ring-necked pheasant populations upstream of New Town that nearly bordered on unbelievable.

"If you went out to the Tobacco Garden area, you'd have your limit of pheasants in 15 minutes and you didn't even need a dog," he said.

Biologists doing spring ring-necked crowing counts back then would tally 50-60 rooster calls per stop in the river bottoms, he said. "Now, in those places where we really think we have some good pheasant numbers, if you get 12-15 calls per stop, you think you are having a pretty good morning," Enyeart said.

The biggest fear among state wildlife managers at the time was the affect the loss in river bottom habitat would have on white-tailed deer. Deer populations, as biologists knew them then, were expected to be a thing of the past once the reservoir filled, and deer scrambled for new digs on higher, drier ground.

"The thing that was so frustrating was that we figured we were going to lose 25 percent or more of deer winter habitat in the state," Enyeart said.

"Perhaps the most disastrous effect of the reservoir will be on the deer herd. Between Oahe and Garrison Reservoirs, the cover will be largely eliminated by new and intensive agriculture in the bottoms where the danger of floods will soon be past. Already many land owners are bulldozing out the timber and brush on their land. As a result of these two dams, the cover of the Missouri bottoms, plus a considerable amount of the tributaries, will be lost," Hanson wrote.

But the deer adapted. All of a sudden, Enyeart said, farmers were growing more row crops in the state and the deer took to those. While other lands, taken out of production through the Soil Bank Act in 1956, provided additional food and cover.

"I still don't think biologists back then knew how adaptive the species would be," he said. "To me, it's amazing how well the whitetails have done."

In 2002, the Department made available nearly 117,000 deer licenses to hunters, the most on record in North Dakota.

"Back then, I don't think we had 117,000 deer in the entire state," Enyeart said. "Last year, we had some people walking around during the deer season with 3-4 tags in their pockets."

**Photo
Omitted**

Changing the Missouri

The Missouri River drains one-sixth of the United States, scientists say, and flows 2,341 miles from the headwaters in Montana to its confluence with the Mississippi River in St. Louis, Missouri.

Today, about one-third of the Missouri River is lake habitat, thanks to Garrison Dam and five other similar structures in Montana, South Dakota and Nebraska. While much of what remains has been altered by man-made channels and distorted flow regimes that nowhere near mirror how the river once operated.

Historians say people were making adjustments on the Missouri River long before Garrison Dam, starting with the first explorers who removed snags – downed trees in the water – to ease their passage on the Big Muddy. The corps, as early as 1832, began removing cottonwood, willow and other snags to make the river more navigable. And efforts have been going on for more than 100 years to stabilize the banks of the meandering river.

“The trouble with going up the Missouri River in a boat is that you had to take the boat along,” wrote author Stanley Vestal.

Navigating the Missouri River, more than one early traveler described, was risky business. The river was said to have a mood of its own, was unpredictable, and certainly far from tamed.

“The warm, muddy water of the Missouri was our only drink, and myriads of mosquitoes, fleas, and other insects were our traveling companions. Still every one spoke of the beautiful fortunate voyage we had made. I fear the sea, I will admit, but all the storms and other unpleasant things I have experienced in four different voyages did not inspire so much terror in me as the navigation of the somber, treacherous and muddy Missouri,” wrote Father Pierre Jean

Construction of Garrison Dam began in 1947 and was officially closed in 1953 at a cost of nearly \$300 million. The large scale of the project, even today, is difficult to imagine. In dirt alone, 9 million truckloads were needed to forever change the Missouri River in North Dakota.

**Photo
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DeSmet in his journals in the 1800s.

Vestal described the Missouri River nearly 60 years ago as the hungriest of all rivers:

"It is eating all the time, eating yellow clay banks and cornfields, 80 acres at a mouthful, winding up its banquet with a truck garden and picking its teeth with the timbers of a big red barn ... Its yearly menu is 10,000 acres of good, rich farming land, several miles of railroad, a few hundred houses, a forest or two and uncounted miles of sandbars."

A string of dams, the 50-year-old Garrison included, has since altered the river's insatiable appetite.

The Missouri River has changed more in the last 50 years than in its history. A forest of cottonwood trees lining the river's banks, for example, is becoming a thing of the past as the natural ebb and flow of the river has been lost.

In pre-dam days, the river ran unchecked, flooding often, and continuously recreating itself. Shifting channels and scoured sandbars and shoreline made the Missouri River perfect habitat for cottonwood trees.

The release of seeds from cottonwoods, scientists remind us, was in sync with the reduced natural river flows in summer. Seeds found their way to newly-formed sandbars and exposed shoreline, resulting in new generations of trees.

With continuous renewal of habitat required for new cottonwood growth, the forest component of the Missouri River was once viable and healthy. Uneven-aged stands of cottonwoods, from seedlings to old-growth, thrived along the river's corridor through North Dakota.

This forest component is by and large gone today, and what remains is mostly old and dying. The majority of what was the cottonwood forest of the Missouri River in North Dakota is inundated by water held by Garrison and Oahe dams.

Cottonwood stands along the Missouri are cherished parts of the river bottom landscape. Scientists have shown that more than 100 plant species are associated with cottonwoods through the succession from seedling to mature forest. Breeding bird densities and the number of species increase throughout the life of a cottonwood stand, and the kind and number of plant and animal species associated

Photo Omitted

with cottonwood forests continue to change as the forest ages. The more varied the ages of cottonwoods, the more different combinations of plant and animal interactions occur.

Fishing Paradise Found

When Garrison Dam was constructed, the envisioned benefits to North Dakotans – economically and otherwise – were linked mainly to hydropower, flood control and water supply. A recreational fishing industry that would mean millions annually to the state – and would be the envy of anglers elsewhere – was not perceived.

"There was a tremendous long-term transformation of the fishery," said Greg Power, Department fish management/research section leader.

Before impoundment, the turbid river environment was favored by those fish that sensed predators and prey through acute smell and other means. But as waters held back by the dam settled and cleared, conditions shifted in favor of site feeders like northern pike and walleye – fish preferred by anglers.

Native species, adapted to the seasonal ebbs and flows of a river doing what it had done naturally for eons, declined. Today, there aren't as many flathead chubs, blue sucker, shovelnose and pallid sturgeon – just to mention a few species – as there once was.

"One of the ramifications of the dam is now we're dealing with endangered species like the pallid sturgeon," Power

said. "We once had in North Dakota about 350 miles of naturally-running Missouri River that changed with the seasons. Now, we have about 20-30 miles of quasi-natural river remaining above Williston."

From the angler's perspective, the exchange in environments, however, has been a boon. "When the lake was impounded, some fish species were ran out and then replaced by others," Power said. "What we've gained, what we have today, is a diverse recreational fishery that is driven by wall-eye."

When the amount of water being sent downstream slowed behind the dam, the reservoir inched slowly upward, swallowing grasses, bushes, and entire trees, cre-

ating spawning habitat for a fish that would put Sakakawea on the angling map.

"All that flooded habitat created some tremendous northern pike spawning habitat," Power said.

From the mid-1960s to the early 1970s, Lake Sakakawea featured some of the best pike fishing around – or maybe in the entire country. Fish weighing more than 20 pounds were not uncommon.

"I remember as a kid seeing signs along the highway calling it the 'Pike Capitol in the Nation,'" Power said. "Pike fishing was the early tourism on Sakakawea. The lake had pike, pike and more pike."

Sometime in the 1970s, things began to change as the rock substrate preferred by spawning walleye was washed clean of layers of sediment.

"The lake went from weeds to rocks, and the walleye population just exploded," Power said.

And before long, the walleye fishing gurus – most notably Al Lindner of In-Fisherman fame – outside of North Dakota discovered this, and spread the word. "Before you knew it, we had the fishing media telling us about this great walleye fishing we had right in our own back yard," Power said.

Instrumental in the walleye fishing craze was the introduction of rainbow smelt into the reservoir in the early 1970s. These forage fish from Lake Superior flourished in their new coldwater environment, and fast became the food of choice of walleye and other predators.

“Putting smelt in Sakakawea was an absolute godsend,” Power said. “Smelt have been critical to the lake’s food chain. If not for smelt, Sakakawea would be a marginal fishery today.”

Sakakawea’s trophy walleye fishery – when 8-pound fish were not uncommon – peaked in the late 1980s. The walleye fishing today – in terms of big fish – is not what it was 15 or more years ago, but it’s still good.

“In 2000, we had a record walleye harvest in terms of numbers caught and harvested,” Power said. “They were nice fish, but just not the 8-pound fish that people remember.”

Drought, and its affect on the reservoir’s coldwater habitat and smelt population, has disturbed Sakakawea’s walleye fishing over the years. As has federal management of the resource, especially

when water is scarce and needed to keep walleye and smelt eggs flooded and alive.

“Water management has been all over the place, which has complicated things,” Power said.

If not for the dam, North Dakota wouldn’t have a chinook salmon fishery today, either. Introduced in the 1970s, salmon are caught by anglers most open-water months, but really become of interest in the fall. It’s then that these fish – hell-bent on finding a place to spawn in Sakakawea’s stillwater environment even though there isn’t one – migrate in waves into back bays where even shore anglers can intercept their passage.

“The upside of Sakakawea right now is its diversity, and salmon are a part of that,” Power said. “In dollars and cents, the dam has more than paid for itself over the years in fishing opportunities and

species diversity.”

From a public use standpoint, more people today get to enjoy Sakakawea than before the river bottom was flooded. “Most of the river bottom was posted before it was flooded, and you weren’t going to get on it to hunt unless you were a family member, or a good friend,” Enyeart said. “So, today, there is more public use than ever before.”

Still, it’s easy to lament – at least a little – the flooding of what was arguably the state’s richest wildlife habitat.

“I had a grandma who said not to cry over spilt milk,” Enyeart said. “Considering the power the dam generates, the flooding it prevents, the dam is here to stay. I don’t think they’re going to take it out anytime soon.”

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**Photo
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